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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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AGILENT TECHNOLOGIES, INC
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EXAMINER

KIKNADZE, IRAKLI

ART UNIT PAPER NUMBER

2882

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,188

Applicant(s)

CHOPRA ET AL.

Examiner

Irakli Kiknadze

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 21 is objected to because of the following informalities: in line 3, " said gas " lacks antecedence and should read -- a gas --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 9-12, 15, 16, 19, 21-24, 27-29, 31 and 32 rejected under 35 U.S.C. 102(e) as being anticipated by Beyne et al. (US patent 6,362,484 B1).

With respect to claim 1, Beyne teaches an x-ray imaging system comprising; a gas detector (1) configured to retain a volume of gas (20) (Fig.3),

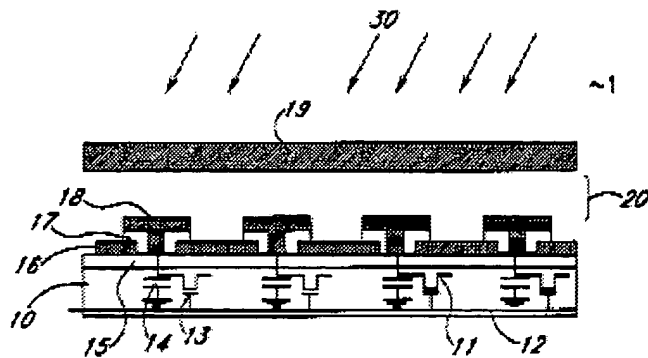


FIG. 3

the gas detector (1) having a

first detection circuit corresponding to a first region of the gas and a second detection circuit corresponding to a second region of the gas, the first detection circuit being adapted to provide a first signal indicative of an intensity of a first portion of x-rays radiating into the first region of the gas, the second detection circuit being adapted to provide a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second region of the gas, the first portion of x-rays being different than the second portion of x-rays (see abstract; column 4; lines 36-56; Figs. 3 and 4)

With respect to claim 9, Beyne teaches that the first signal corresponds to at least a first pixel and said second signal corresponds to at least a second pixel (see abstract; Figs. 3 and 4).

With respect to claim 10, Beyne teaches an image processing system configured to receive the first signal and the second signal, said image processing system being further configured to generate first pixel data corresponding to at least a first pixel from the first signal and second pixel data

corresponding to at least a second pixel from the second signal (column 12; lines 56-67; Figs. 6-9).

With respect to claim 11, Beyne teaches the image processing system includes a display device and is further configured to render the first pixel data and the second pixel data on the display device (column 12; lines 56-67).

With respect to claim 12, Beyne teaches means for applying a potential difference across the volume of gas (column 5; lines 39-51).

With respect to claim 15, Beyne teaches a method for imaging with the use of x-rays, the method comprising: providing a volume of gas; defining a first region of the gas and a second region of the gas, the first region of the gas being different than the second region of the gas; generating a first signal indicative of an intensity of a first portion of x-rays radiating into the first region of the gas, the first signal corresponding to at least a first pixel (18); and generating a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second region of the gas, the second signal corresponding to at least a second pixel (any other pixel (18) in a detector array) wherein the first portion of x-rays is different than the second portion of X-rays (see abstract; lines 36-56; Figs. 3 and 4).

With respect to claim 16, Beyne teaches rendering the first pixel based on the first signal; and rendering the second pixel based on the second signal (column 12; lines 56-67; Figs. 6-9).

With respect to claim 21, Beyne teaches an imaging system (Figs. 3 and 4) comprising: a gas detector (1) comprising imaging volumes arranged in an array

(see abstract), a gas (a gap (20) is filled with an ionization gas) being susceptible to ionization; (column 4; lines 36-57) an ionization detector (60) for providing indications of ionization of the gas for at least some of the imaging volumes (Fig.6; column 11; lines 1-17); and an image generator for converting said indications into an image (column 12; lines 62-66).

With respect to claim 22, Beyne teaches that the imaging system is a two dimensional x-ray imager irradiated with x-rays (30) from an x-ray source (not shown in figures) for ionizing the gas within the imaging volumes as a function of characteristics of an object being imaged (Fig.3; column 4; lines 26-35).

With respect to claim 23, Beyne teaches the image generator including pixels (18) for displaying the image; and at least some of the imaging volumes correspond to at least some of the pixels (18) (column 12; lines 62-66).

With respect to claim 24, Beyne teaches that at least some of the imaging volumes are separated from others of the imaging volumes (see abstract).

With respect to claim 27, Beyne teaches an imaging method comprising: providing a gas detector comprising an array of gas volumes; detecting ionization at respective gas volumes in the array of gas volumes; and converting the ionization detected into an image (Fig.3; column 4; lines 36-60).

With respect to claim 28, Beyne teaches irradiating an object with x-rays so as to ionize at least some of the gas (column 4; lines 25-35).

With respect to claims 19 and 29, Beyne teaches generating first signals indicative of an intensity of ionization in a first of the gas volumes, generating second signals indicative of an intensity of ionization in a second of the gas

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volumes, and generating sequential images corresponding to the object based on the signals generated (column 12; lines 58-67).

With respect to claim 31, Beyne teaches: providing a first pixel; providing a second pixel; rendering the first pixel based on the first signals; and rendering the second pixel based on the second signals (column 12; lines 58-67).

With respect to claim 32, Beyne teaches that the array of gas volumes (20) is provided upon a substrate (15) (Fig.3).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 6-8, 17, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beyne et al. (US patent 6,362,484 B1) in view of Pullan (US Patent 5,099,129).

With respect to claims 2-4, 6, 7, 25 and 26, Beyne teaches a substrate (15) but

silent about the imaging system, wherein the imaging volumes are defined by chambers and gas passages formed between at least some of the chambers, enabling adjacent ones of the chambers to communicate pneumatically. Pullan teaches a detector head assembly comprising: structure defining multiplicity of

drift chambers (12) (structure defining each of the drift chambers having one or more apertures for passage therethrough of ions resulting from ionization of gas within the chambers due to radioactive emission) to improve the detection gain of the detector head assembly (see abstract; Figs. 1-4). It would have been obvious to one ordinary skill in art at the time invention was made to employ the teachings of Pullan with the X-ray detector of Beyne in order to improve the detection gain of the gas detector allowing produce enhanced X- ray images corresponding to the object of interest.

With respect to claim 8, Pullan teaches walls (10) to prevent "cross-talk" due to radiation entering adjacent chambers. It would have been obvious to one ordinary skill in art at the time invention was made to employ the teachings of Pullan with the X-ray detector of Beyne and provide an X-ray stopping/absorbing components arranged between the first chamber and second chamber allowing to absorb off-axis photons, thereby increase resolution of the gas detector.

6. Claim 5, 13, 14 are 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bayne et al. (US Patent 6,362,484 B1) in view of McDaniel et al. (US Patent 4,780,897).

With respect to claim 5, 13, 14 and 18, teaches claimed except for a first and second gas reservoirs communicating with the chamber. McDaniel teaches an X-ray detector using two different gases (ion sources) at different pressures. Gasses (e.g. Krypton and Xenon) and pressures could optimally be

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selected to pass higher energy X-rays an/or to allow interact with lower energy X-rays for producing desirable X-ray image (column 12; lines 15-25). It would have been obvious to one ordinary skill in art at the time invention was made to provide the X-ray imaging system of Francke with teachings of McDaniel, in order to potentially change operating characteristics of the gas detector so that improved signal corresponding to the detected X-rays can be produced.

7. Claims 20 and 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beyne et al. (US patent 6,362,484 B1) in view of Little et al (US Patent 5,119,408).

With respect to claims 20 and 30, Beyne teaches claimed invention except for moving the object relative to the volume of the gas while the object is being irradiated. Little teaches a method (Figs. 3A-3B) for inspecting an object (80) moving relative to a Xenon gas detector (column 4; line 79 –column 5; line 16) to obtain dynamic X-ray images corresponding to the object. It would have been obvious to one ordinary skill in art at the time invention was made to employ the teachings of Little with the X-ray detector of Beyne in order to provide dynamic X-ray images corresponding to the object of interest.

Response to Arguments

8. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli kiknadze
July 12, 2004

IK


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER